

## ATTACHMENT 1 GLOSSARY

The following definitions include terms often encountered in the development and use of P&IDs (Ref: ISA-51.1; for additional definitions, see ISA-51.1 and the ISA-75 series for control valves). Terms italicized in a definition are also defined, and may also be discussed in Section D10-30PFD proper.

**Accessible** - A term applied to a device or *function* that can be used or be seen by an operator for the purpose of performing control actions, e.g., *set point* changes, auto-manual transfer, or on-off actions.

**Alarm** - A device or *function* that signals the existence of an abnormal condition by means of an audible or visible discrete change, or both, intended to attract attention.

**Assignable** - A term applied to a feature permitting the channeling (or directing) of a signal from one device to another without the need for switching, patching, or re-wiring.

**Auto-Manual Station** - synonym for control station.

**Balloon** - Synonym for *bubble*.

**Behind the Panel** - A term referring to devices that are not *accessible* for the operator's normal use, as opposed to devices designated as *local* or front-of-panel-mounted. In a very broad sense, "*behind the panel*" is equivalent to "not normally *accessible* to the operator."

**Binary** - A term applied to a signal or device that has only two discrete positions or states. When used in its simplest form, as in "*binary signal*" (as opposed to "*analog signal*"), the term denotes an "on-off" or "high-low" state, i.e., one which does not represent continuously varying quantities.

**Bubble** - The circular symbol used to denote and identify the purpose of an *instrument* or *function*. It may contain a tag number. Synonym for *balloon*.

**Computing Device** - A device or *function* that performs one or more calculations or logic operations, or both, and transmits one or more resultant output signals. A *computing device* is sometimes called a computing *relay*.

**Configurable** - A term applied to a device or system whose functional characteristics can be selected or rearranged through programming or other methods. The concept usually excludes re-wiring as a means of altering the configuration.

**Controller** - A device having an output that changes to regulate a controlled variable in a specified manner. A *controller* may be a self-contained analog or *digital instrument*, or it may be the equivalent of such an *instrument* in a shared-control system. An automatic *controller* varies its output automatically in response to a direct or indirect input of a measured process variable. A manual *controller* is a *manual loading station*, and its output is not dependent on a measured *process variable* but can be varied only by manual adjustment. A *controller* may be integral with other functional elements of a control *loop*.

**Control Station** - A *manual loading station* that also provides switching between manual and automatic control modes of a control *loop*. It is also known as an *auto-manual station*. In addition, the operator interface of a *distributed control system* may be regarded as a *control station*.

**Control Valve** - A device, other than a common, hand-actuated ON-OFF valve or self-actuated check valve that directly manipulates the flow of one or more fluid process streams. In general, use of the designation "*hand control valve*" is limited to hand-actuated valves that (1) are used for process throttling, or (2) require identification as an *instrument*.

**Converter** - A device that receives information in one form of an instrument signal and transmits an output signal in another form. An instrument that changes a sensor's output to a standard signal is properly designated as a transmitter, not a converter. Typically, a temperature element (TE) may connect to a transmitter (TT), not to a converter (TY).

**Detector** - Synonym for *sensor*.

**Digital** - A term applied to a signal or device that uses *binary* digits to represent continuous values or discrete states.

**Distributed Control System** - A system, which while being functionally integrated, consists of subsystems, which may be physically separate and remote from one another.

**Final Control Element** - The device that directly controls the value of the manipulated variable of a control loop. Often the *final control element* is a *control valve*.

**Function** - The purpose of, or an action performed by, a device.

**Instrument** - A device used directly or indirectly to measure and/or control a variable. The term includes *primary elements*, *final control elements*, *computing devices*, and electrical devices such as annunciators, *switches*, and push buttons. The term does not apply to parts (e.g., a receiver bellows or a resistor) that are internal components of an instrument.

**Instrumentation** - A collection of *instruments* or their application for the purpose of observation, *measurement*, control, or any combination of these.

**Local** - Designates an *instrument*, *controller*, or control station which is installed in the vicinity of the component or device which it affects, as opposed to one mounted in a remote panel or control station. The word "field" is often used synonymously with *local*.

**Loop** - A combination of measurement or input devices, *instruments*, and/or control *functions* arranged so that signals pass from one to another for the purpose of *measurement* and/or control of a *process variable*.

**Manual Loading Station** - A device or *function* having a manually adjustable output that is used to actuate one or more remote devices. The station does not provide switching between manual and automatic control modes of a control *loop* (see *controller* and *control station*). The station may have integral indicators, lights, or other features. It is also known as a manual station or a manual loader.

**Measurement** - The determination of the existence or the magnitude of a variable parameter.

**Monitor** - A general term for an *instrument* or *instrument system* used to measure or sense the status or magnitude of one or more variables. The term *monitor* is very unspecific as it can sometimes mean analyzer, indicator, or alarm. *Monitor* can also be used as a verb.

**Monitor Light** - Synonym for *pilot light*.

**Panel** - A structure upon which are mounted a group of *instruments*, and which houses the operator-process interface. A panel may consist of one or several sections, cubicles, consoles, or desks. A synonym for *board*.

**Panel-Mounted** - A term applied to an *instrument* that is mounted on a *panel* or console and is *accessible* for an operator's normal use. A *function* that is normally accessible to an operator in a *shared-display* system is the equivalent of a discrete *panel-mounted* device.

**Pilot Light** - A light that indicates which of a number of normal conditions of a system or device exists, as differentiated from an *alarm* light, which indicates an abnormal condition. The pilot light is also known as a monitor light.

**Piping and Instrumentation Diagram (P&ID)** - A schematic (diagrammatic) representation of the piping, ductwork, equipment, and instrumentation and controls showing the physical/functional relationship among the various components.

**Primary Element** - Synonym for *sensor* or *detector*.

**Process Flow Diagram (PFD)** - A schematic (diagrammatic) representation of the piping, ductwork, and equipment showing the physical/functional relationship among the various components for the purpose of depicting a given system's flow, temperature, pressure and mass balance relationships.

**Process Variable** - Any property of a process that can be expected to change during the normal operation of the process.

**Program** - A repeatable sequence of actions that defines the status of outputs as a fixed relationship to a set of inputs.

**Programmable Logic Controller** - A *controller*, usually with multiple inputs and outputs, that contains an alterable program.

**Relay** - A device whose *function* is to pass on information in some modified form. Relay is often used to mean *computing device*. The term "relay" also is applied specifically to an electric, pneumatic, or hydraulic *switch* that is actuated by a signal. The term also is applied to *functions* performed by a relay.

**Scan** - To sample, in a predetermined manner, each of a number of variables intermittently. The *function* of a scanning device is often to ascertain the state or value of a variable. The device may be associated with other *functions* such as recording and alarming.

**Sensor** - That part of a *loop* or *instrument* that first converts the value of a process variable into a corresponding, predetermined, and intelligible state or output. The sensor may be separate from or integral with another functional element of a *loop*. The sensor is also known as a detector or *primary element*.

**Set Point** - An input variable that sets the desired value of the controlled variable. A set point may be manually set, automatically set, or programmed. Its value is usually expressed in the same units as the controlled variable.

**Shared Controller** - A *controller* containing preprogrammed algorithms that are usually *accessible*, *configurable*, and *assignable*. It permits a number of *process variables* to be controlled by a single device.

**Shared Display** - The operator interface device (commonly a video screen) used to display process control information from a number of sources at the command of the operator.

**Switch** - A device that connects, disconnects, selects, or transfers one or more circuits and is not designated as a *controller*, a *relay*, or a *control valve*. As a verb, the term is also applied to the *functions* performed by switches.

**Test Point** - A process connection to which no *instrument* is normally connected, but which is intended for the temporary or intermittent connection of an *instrument*.

**Transducer** - A general term for a device that receives information in the form of one or more physical quantities, modifies the information and/or its form, if required, and produces a resultant output signal, usually electric. Depending on the application, the transducer can be a *primary element*, *transmitter*, *relay*, *converter* or other device. Because the term "transducer" is not specific, its use for specific applications is not recommended.

**Transmitter** - A device that senses a *process variable* through the medium of a *sensor* and has an output whose steady-state value varies only as a predetermined *function* of the *process variable*. The *sensor* may or may not be integral with the transmitter. Transmitters frequently convert physical input process signals into electrical outputs.